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**BALLISTIC MISSILE DEFENSE:
PUTTING A 'ROOF' OVER OUR FORCES IN THE THEATER**

by

Kevin E. McHugh
Lt Col, USAF

A paper submitted to the Faculty of the Naval War College in partial satisfaction of the requirements of the Department of Operations.

The contents of this paper reflect my own personal views and are not necessarily endorsed by the Naval War College or the Department of the Navy.

Signature: Kevin E. McHugh

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3680 94-25960



DTIC QUALITY INSPECTED 1

94 8 16 1 27

UNCLASSIFIED

Security Classification This Page

REPORT DOCUMENTATION PAGE

1. Report Security Classification: UNCLASSIFIED			
2. Security Classification Authority:			
3. Declassification/Downgrading Schedule:			
4. Distribution/Availability of Report: DISTRIBUTION STATEMENT A: APPROVED FOR PUBLIC RELEASE; DISTRIBUTION IS UNLIMITED.			
5. Name of Performing Organization: Joint Military Operations Department			
6. Office Symbol: 1C		7. Address: Naval War College, 686 Cushing Rd., Newport, RI 02841-5010	
8. Title (Include Security Classification): BALLISTIC MISSILE DEFENSE: PUTTING A 'ROOF' OVER OUR FORCES IN THE THEATER (U)			
9. Personal Authors: KEVIN E. MCHUGH, Lt Col, USAF			
10. Type of Report: Final		11. Date of Report: 16 MAY 1994	
12. Page Count: 32			
13. Supplementary Notation: A paper submitted to the Faculty of the Naval War College in partial satisfaction of the requirements of the Joint Military Operations Department. The contents of this paper reflect my own personal views and are not necessarily endorsed by the Naval War College or the Department of the Navy.			
14. Ten key words that relate to your paper: BALLISTIC MISSILE DEFENSE, THEATER MISSILE DEFENSE, THEATER BALLISTIC MISSILE DEFENSE			
15. Abstract: This paper examines the development of ballistic missile defense and the concepts that operational commanders should consider to counter growing threats posed by potential adversaries possessing ballistic missiles and weapons of mass destruction (WMD). In Desert Storm, the Scud missiles launched served primarily as terror weapons, as they were not militarily very significant, due to their poor accuracies, conventional warheads, and low launch rates. But, with accelerating technological advances and strong pressures for proliferation of theater ballistic missiles (TBMs) and WMD, regional aggressors will likely resort to using TBMs as a relatively cheap, effective warfighting means. We must anticipate facing more sophisticated, challenging scenarios. Moreover, in the next regional contingency/conflict, it is not likely the enemy will allow us five months for a secure, orderly buildup; instead, he may try to quickly interfere with our political and military preparations. Although Patriot appeared successful in the Gulf War, it is inadequate; and regional CINCs must advocate, acquire, integrate, and exercise new systems for theater ballistic missile defense (TBMD). Preparation is key. Also, all CINCs must cooperate to deter aggressors from acquiring and employing WMD, realizing that TBMs in one theater could be launched against targets in another, and that TBMs carrying WMD could have strategic implications. Our forces must not only attempt to deter and deny the enemy; they must also be able to defend against any TBMs launched. Ultimately, our ability to defend against TBMs could be a major factor in discouraging proliferation, and in deterring aggressors from launching missiles. The Joint Force Commander (JFC) must ensure unity of effort by all services in orchestrating counters to the TBM threat. And the JFC should plan to put mobile TBMD systems into a conflict area early on, for active defense, and position them to intercept missiles launched close to their sources. By minimizing the vulnerability to TBMs, we would help ensure our operations can achieve our political objectives.			
16. Distribution / Availability of Abstract:	Unclassified	Same As Rpt	DTIC Users
18. Abstract Security Classification: UNCLASSIFIED			
19. Name of Responsible Individual: Chairman, Joint Military Operations Department			
20. Telephone: (401) 841-3414/4120		21. Office Symbol: 1C	

ABSTRACT OF

BALLISTIC MISSILE DEFENSE: PUTTING A 'ROOF' OVER OUR FORCES IN THE THEATER

This paper examines the development of *ballistic missile defense* and the concepts that operational commanders should consider to counter growing threats posed by potential adversaries possessing ballistic missiles and weapons of mass destruction (WMD). In *Desert Storm*, the *Scud* missiles launched served primarily as terror weapons, as they were not militarily very significant, due to their poor accuracies, conventional warheads, and low launch rates. But, with accelerating technological advances and strong pressures for proliferation of *theater ballistic missiles* (TBMs) and WMD, regional aggressors will likely resort to using TBMs as a relatively cheap, effective warfighting means. We must anticipate facing more sophisticated, challenging scenarios. Moreover, in the next regional contingency/conflict, it is not likely the enemy will allow us five months for a secure, orderly buildup; instead, he may try to quickly interfere with our political and military preparations. Although *Patriot* appeared successful in the Gulf War, it is inadequate; and regional CINCs must advocate, acquire, integrate, and exercise new systems for *theater ballistic missile defense* (TBMD). Preparation is key. Also, all CINCs must cooperate to deter aggressors from acquiring and employing WMD, realizing that TBMs in one theater could be launched against targets in another, and that TBMs carrying WMD could have strategic implications. Our forces must not only attempt to deter and deny the enemy; they must also be able to defend against any TBMs launched. Ultimately, our ability to defend against TBMs could be a major factor in discouraging proliferation, and in deterring aggressors from launching missiles. The Joint Force Commander (JFC) must ensure unity of effort by all services in orchestrating counters to the TBM threat. And the JFC should plan to put mobile TBMD systems into a conflict area early on, for active defense, and position them to intercept missiles launched close to their sources. By minimizing the vulnerability to TBMs, we would help ensure our operations can achieve our political objectives.

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CHAPTER I

INTRODUCTION

Watching Cable News Network (CNN) during *Desert Storm* (in early 1991), any sensible person must have wondered why the viability of the US-led coalition forces -- and the course of the war -- seemed to hang on every Iraqi *Scud* missile attack. People sat frozen to their chairs, waiting to see if the next one that got through the *Patriot* defensive system just might carry with it a terrible chemical, biological, or even nuclear disaster. Although the loss of life and destruction caused by the warheads or falling debris turned out to be relatively low, folks at home were frustrated by the apparent vulnerability bases and population centers in Saudi Arabia and Israel seemed to have; others were dismayed at our forces inability to locate and destroy the mobile *Scud* launchers before the Iraqis could use them to attack. At the same time, military-wise people knew how difficult that was, in spite of with all our high technology and assets. Moreover, everyone became aware of our nearly total dependence on *Patriot* for defense. After each successful intercept, people professed, "Thank God for the *Patriot* missiles," thinking those batteries provided some magical, protective shield. However, many people, not understanding the truly limited capability of the *Patriot* system, turned off their TV sets after that short war, believing US forces were just about invincible. They did not realize the serious vulnerability of the coalition's operations and its political cohesiveness.

The purpose of this paper is to examine the development of *ballistic missile defense* (BMD) and the concepts operational commanders should consider to counter the growing regional threats posed by potential adversaries with ballistic missiles and weapons of mass destruction (WMD).

In *Desert Shield/Desert Storm*, the *Scud* missiles launched served primarily as terror weapons, as they were not militarily very significant, due to their poor accuracies, conventional warheads, and low launch rates. Also, we were able to mount concerted efforts to disrupt Iraqi command and control, and to reduce the number of *Scud* launchers, which surely affected their launch rates. But, with accelerating technological advances and pressures for the proliferation of *theater ballistic missiles* (TBMs) and WMD, regional aggressors will most likely resort to using

TBMs and WMD as relatively cheap, effective, warfighting means. We must anticipate facing more sophisticated, challenging scenarios. Moreover, in the next regional contingency/conflict, it is not likely that the enemy will allow us 5 months for a secure, orderly buildup; instead, he will probably try to quickly interfere with our political and military preparations. Although *Patriot* appeared to be successful in the Gulf War, it is inadequate; and regional commanders must advocate, acquire, integrate, and exercise new systems for *theater ballistic missile defense* (TBMD). Preparation is key. It will be imperative that operational commanders protect our precious few forces and assets.

During operations, the US Joint Force Commander (JFC) must ensure *unity of effort* by all services in orchestrating counters to the TBM threat. Our forces must not only *deter* and *deny* the enemy; they must also be able to *defend* against any TBMs launched. Our ability to defend against TBMs could be a major factor in discouraging proliferation, and in deterring hostile aggressors.

Without dedicating serious attention to articulating requirements for TBMD, and planning to integrate those defensive systems into joint operations, the US military may be unprepared for the next regional contingency. Until the decade preceding the 1991 Gulf War, American political expediency led past political leaders to shrink our military resources, erode capabilities, and ignore potential threats, to the point of unpreparedness. This may have contributed to the outbreaks of some wars; and the unpreparedness of our military entailed enormous human and material costs, as we had to fight lengthy conflicts to overcome huge initial gains by enemies. Today, we are again drawing down our forces, and our leadership is focused on economic issues. We may soon be in danger of repeating history, because we are poorly prepared to meet a "mushrooming" TBM threat in regions of vital US interest. Yet, while we are unable to protect forces and allied populations, military leaders have not made our vulnerability to TBMs well known. President Ronald Reagan publicly exposed the vulnerability of our homeland to attack by ICBMs in 1983; but, for over two decades prior to that, most Americans had believed that the US military could *protect* them from missile attack. They assumed we had developed and deployed a defense against ballistic missiles, like we had built up strategic *air defense* in the 1950s. But, they were wrong; we had not.

CHAPTER II

FOUNDATION OF BALLISTIC MISSILE DEFENSE

Strategic Air Defense Background

In the aftermath of World War II, with the 1949 explosion of the first Soviet atomic device and the rapid expansion of their long-range bomber fleet, the United States and Canada perceived a direct aerial threat and moved to develop a comprehensive *air defense* infrastructure. The two nations joined forces to: (1) construct far-flung radar networks (to give early warning of Soviet bomber attack via polar routes); (2) produce and deploy thousands of "active" air defense assets (to intercept Soviet bombers before they could launch their nuclear free-fall bombs or air-to-surface missiles); and (3) to provide command-and-control (C²) systems (to link all the resources). This tremendous effort continued through the 1950s, and resulted in the establishment of the North American Air Defense Command (NORAD) during 1957-58. At its peak strength in the early 1960s, NORAD could muster 103 fighter-interceptor squadrons with 2,612 aircraft, plus 439 *Bomarc* surface-to-air missiles (SAMs) and 274 *Nike* SAM batteries to defend the continent.¹

However, in 1957 (the same year NORAD originated), the Soviets launched the first satellite (*Sputnik*); and the emerging threat of ICBMs was, at once, clearly credible. Hence, Soviet bombers became a secondary concern, and our threat focus shifted as Soviet holdings of ICBMs (and later, submarine-launched SLBMs) grew at an alarming rate. Thus, with the coming of the ICBM age,² the very concept of "active" air defense of North America became an anachronism. There seemed little point in maintaining extensive air defenses when there was virtually no defense against ballistic missile attack; so, from the 1960s on, continental air defense began a long decline.

¹ Martin Shadwick, "Early Warning: Modernizing the North American Air Defense System," *Aerospace Canada International*, May/June 1985, pp. 12-17; and Canadian Senate, Special Committee on National Defence, *Report: Canada's Territorial Air Defence*, January 1985, pp. 5-9.

² Relatively short-/intermediate-range guided missiles -- the slower, jet-propelled V-1 (*buzz bomb*) cruise missile and the supersonic, rocket-boosted V-2 ballistic missile -- had been developed and used by the Germans during WWII.

After pursuing a "crash" research and development effort -- *Project Defender* (initiated by the Eisenhower administration in 1958 and abandoned in 1964), US leaders decided that pursuing ballistic missile defense was neither feasible nor cost effective.³ Considering the technology then at hand, any conceivable missile defense system could be easily overwhelmed by offensive measures. Also, it was obvious that greater offensive systems could be produced at less cost than defensive ones. Both the US and Soviet governments could not afford to waste funds and resources pursuing BMD, especially when it would probably only "throw fuel on the fire" of the arms race. These mutual understandings were then reflected in the 1972 *Anti-Ballistic Missile (ABM) Treaty*.⁴

With the United States engrossed in the Vietnam conflict, and a period of *détente* underway between the two superpowers, policy makers chose to ignore our vulnerability to attack by nuclear ICBMs. They continued to rely simply on the threat of *massive retaliation* for *deterrence*, and on the strange "security" of our "nuclear umbrella," believing neither side would resort to war and *mutual assured destruction* (MAD). Because most Americans assumed we had BMD, many were confused and shocked by revelations unveiled in President Reagan's nationwide television address on March 23, 1983. During it, he launched the *Strategic Defense Initiative* (SDI) -- soon dubbed "*Star Wars*" by the press. With the images that nickname inferred, the fact that neither of the titles helped describe what the program was all about, and the associated hype drummed up by protest groups and the media, most Americans soon lost focus of what SDI offered.

The Vision of the Strategic Defense Initiative

In his 1983 address on SDI, President Reagan admitted that the approach to stability -- through offensive threat -- had worked for more than three decades; however, he pointed out that his advisers (including the Joint Chiefs of Staff) had recently underscored the "necessity to break out of a future that relies solely on offensive retaliation for our security."⁵ He went on to reveal:

³ Daniel O. Graham (LTG, USA, Ret.) and Gregory A. Fossedal, *A Defense That Defends: Blocking Nuclear Attack* (Old Greenwich, CT: Devin-Adair, Publishers, 1983), pp. 146-152.

⁴ *Ibid.*

⁵ Graham and Fossedal provide the script of President Reagan's nationally televised SDI

Over the course of these discussions, I have become more and more deeply convinced that the human spirit must be capable of rising above dealing with other nations and human beings by threatening their existence. ... Wouldn't it be better to save lives than to avenge them? ... Let me share with you a vision of the future which offers hope. ... What if free people could live secure in the knowledge that their security did not rest upon the threat of instant US retaliation to deter a Soviet attack; that we could intercept and destroy strategic ballistic missiles before they reached our own soil or that of our allies? ... This could pave the way for arms control measures to eliminate the (nuclear) weapons themselves. We seek neither military superiority nor political advantage. Our only purpose -- one all people share -- is to search for ways to reduce the danger of nuclear war.⁶

Essentially, by recognizing the "gaping hole" in our defense strategy, President Reagan asserted that it was time to fill it with some means of denying the enemy's objectives and protecting our people and property in the event deterrence failed. He took the lead in proposing we no longer limit ourselves to only one option -- that of having to react by "doing the unthinkable."

Pursuit of "A Defense That Defends"

President Reagan's initiative apparently grew from roots planted in 1980 by *Project High Frontier*, a study undertaken by a group formed under the auspices of the conservative Heritage Foundation. The project's findings were reported in March 1982, and submitted to Reagan. The study proposed a major shift in US defense strategy, in which a system of satellites in space could destroy Soviet nuclear missiles following their launch toward America. It suggested a crash program (through a *Manhattan Project*-style approach) to make a technological "end run" around the growing Soviet offensive missile threat, using US equipment already in development. The emphasis was on using the US technological edge to exploit the potential of space -- space being the emerging "high ground" of economic and military strength, and the natural place to base a new generation of weapons for strategic defense. Thus, Reagan envisioned not just point (ground) defenses, but a global, nearly leak-proof, layered, defensive shield, primarily relying on space-based

speech (on March 23, 1983) in Appendix C of their book, A Defense That Defends: Blocking Nuclear Attack, pp. 143-145. The above is an excerpt.

⁶ Ibid.

directed-energy weapons. He established SDI research and development to put America on a course toward the ultimate goal of eliminating the threat posed by strategic nuclear missiles -- not just to our continent, but to US and allied populations, forces, and operations overseas.⁷

Transformation of SDI (From Global, Space-Based Concept To Deployment Reality)

The Reagan-prompted effort to render nuclear weapons "impotent and obsolete"⁸ proved difficult during his time in office (in spite of about \$16 billion appropriated for SDI through FY 89), as attempts to develop lasers and other systems lost favor to kinetic energy weapons, and budget pressures mounted.⁹ Then, starting in 1987, the SDI program emphasis began to shift away from long-term research toward possibilities for early deployment -- with the notion that deployment of any BMD would have to occur in phases. Thus, the *SDI Organization* (SDIO) began to focus on three options: (1) a Phase-1 system, incorporating space-based interceptors known as "*Brilliant Pebbles*," to be deployed in the late 1990s; (2) a ground-based defense of military targets, with deployment of an *Anti-Tactical Ballistic Missile* (ATBM) system in Western Europe favored as an initial step; and (3) an *Accidental-Launch Protection System* (ALPS), Senator Sam Nunn proposed in January 1988, which was similar to an idea suggested 20 years before for a "thin" *area defense*.¹⁰

When George Bush took over as President, he initially held SDI spending at a steady level; however, in his January 1991 *State-of-the-Union* address, he redirected SDIO's efforts to focus on reliance on ground-based systems for defense against limited or accidental missile attacks. The new program, designated *Global Protection Against Limited Strikes* (GPALS), reflected the perception of a diminishing threat of any all-out nuclear attack from the Soviet Union, as well as a growing concern about ballistic missile proliferation.¹¹ GPALS also reflected fiscal reality seen in facing the high cost of space lift, and the need to produce something to show for all the money already spent.

⁷ Graham and Fossedal, pp. 43-66.

⁸ *Ibid.*, p. 145.

⁹ Peter Ambush, "The Rise and Fall of Strategic Defense," *Defense News*, May 17, 1993, p. 1.

¹⁰ Ivo H. Daalder, *Strategic Defences in the 1990s: Criteria for Deployment* (New York, NY: St. Martin's Press, 1991), pp. 24-111. Sec Def McNamara proposed *Sentinel* in a Sep 1967 speech.

¹¹ Ambush, p. 1.

Finally, it seems the Clinton administration wanted to transition from what it perceived as the ideologically-charged Republican SDI program. So, on May 13, 1993, Defense Secretary Les Aspin proclaimed the end of the *Star Wars* era, saying he was renaming and refocusing the SDIO to reflect the administration's change in priorities. The new name was *Ballistic Missile Defense Organization* (BMDO), and it would no longer report directly to the Secretary of Defense. He wanted to treat the BMD program like any other hardware acquisition program, to demonstrate a shift -- from research, to development and acquisition. He said the decade-old Washington debate on whether we should build a massive defense against missile attack was over: "The fate of *Star Wars* was sealed by the collapse of the Soviet Union." Conversely, he did acknowledge that the decade of SDI -- with over \$30 billion invested -- may have played a role in the Soviet demise.¹² However, without saying it (as he briefed), Secretary Aspin clearly proved that *strategic defense* is not yesterday's issue:

Ten years later we find that we have a different need for ballistic missile defense, not the massive program of space-based weapons that Ronald Reagan envisioned. Saddam Hussein and the *Scud* missiles allowed us -- showed us that we needed ballistic missile defense for our forces in the field. The threat is here and now. In the future, we may face hostile or irrational states that have both nuclear warheads and ballistic missile technology that could reach the United States.¹³

¹² Barbara Opall, "BMD Era Requires Vision, Difficult Choices," Defense News, May 17-23, 1993, pp. 1, 13.

¹³ Defense Secretary Aspin's briefing on BMDO, Federal News Service script, May 13, 1993.

CHAPTER III

THE CONTEXT

Developments in the International Security Environment

Possibly, at no other time in the world's history has mankind experienced such a period of sudden, profound, yet relatively peaceful change than the one from 1989 through 1991 -- which brought the collapse of the Berlin Wall, the dissolution of the Warsaw Pact, and the demise of the Soviet Union. People around the globe were mesmerized by the astonishing rate of change, as well as by the realization that the changes were fundamental. But, the celebration of the end of the Cold War (and its bipolar confrontation) was hardly followed by any "restful sleep." Leaders everywhere "sat up" to news of the Iraqi invasion of Kuwait, and citizens tuned in televisions to watch the *Desert Storm* rising. Moreover, the world witnessed long-dormant ethnic and nationalistic tensions virtually exploding in newly independent states. Thus, a new security environment dramatically emerged. As a consequence of the Soviet breakdown, many people believe the prospect of a nuclear World War III has all but disappeared; however, many also feel there is no longer a real security order, only varying degrees of disorder, and new threats.¹⁴ The dawn of an era of general peace and tranquillity has yet to come. Now, the United States, as the sole superpower, stands in a doorway which opens to a more complex, dynamic, uncertain, and risky world than ever before.

US National Security Strategy

Coincidentally, on the same day (August 2, 1990) Iraq invaded Kuwait, President Bush outlined a new *National Security Strategy* (NSS) based on *peacetime engagement*, to replace the more militarily oriented *collective defense* and *containment* of the Cold War era.¹⁵ After *Desert Storm*, that strategy evolved to one of *collective engagement*, as prescribed by President Bush in

¹⁴ Colin S. Gray, "Strategic Sense, Strategic Nonsense," The National Interest, Fall 1992, pp. 11-14.

¹⁵ George Bush, "United States Defense: Reshaping Our Forces," delivered to the Aspen Institute Symposium, in Aspen, CO, August 2, 1990.

his NSS update, published in January 1993.¹⁶ Although the Clinton administration has still failed to spell out its version of a NSS, it did offer an outline of one described as *enlargement*.¹⁷

Whether "*engagement*" or "*enlargement*," one thing seems certain: The world will demand US leadership; so, US involvement or intervention in interstate/intrastate contingencies is bound to increase. Because *forward presence* and *crisis response* will remain as two of the four fundamental elements of our *National Military Strategy* (NMS), we will keep deploying forces and conducting operations overseas (as we have done recently). Even though we are reducing our permanent bases overseas, US military forces and other Americans are more likely to be exposed to greater danger.

New Dangers and Potential Threats

The relevance of the US military's TBMD capability -- in theaters around the globe -- was highlighted in Secretary Aspin's September 1993 report of the *Bottom-Up Review* (BUR) results. In it, he identified four categories of "*new dangers*" to US security interests: (1) dangers posed by nuclear weapons and other WMD, including the proliferation of such weapons and the massive Russian nuclear arsenal inherited from the former Soviet Union (FSU); (2) regional dangers, including aggression by regional powers -- some with ballistic missiles -- against the US security interests, as well as internal conflict within states of key regions that threaten stability; (3) dangers to democracy and reform in the new independent states of Eurasia; and (4) economic dangers -- both internal and external -- to the United States.¹⁸

Obviously, the Bush team had already heard the Gulf War's "wake-up call" concerning the threat from proliferation and the vulnerability to intermediate-range ballistic missiles in regions vital to US interests; focusing SDI on GPALS reflected that. Making *theater missile defense* (TMD) -- defense against cruise missiles, as well as ballistic missiles -- a top priority was also manifest in the

¹⁶ The White House, National Security Strategy of the United States (Washington, DC: US GPO, January 1993), pp. i-21.

¹⁷ President Clinton's NSS was apparently revealed in a speech by National Security Adviser Anthony Lake, at Johns Hopkins University; Federal News Service script, September 21, 1993.

¹⁸ Dennis McDowell, "Theater Missile Defense: A Joint Enterprise," Joint Force Quarterly, Winter 1993-94, pp. 81-82.

Missile Defense Act of 1991; and it was subsequently renewed in the FY 92, 93, and 94 *National Defense Authorization Acts*. Then, the Clinton administration, in announcing SDIO's name change to BMDO, and in conducting the BUR, sharpened focus on TMD as BMDO's highest priority. Secretary Aspin listed BMDO's priorities as the following: first, *theater* missile defense, to cope with the new dangers in the post-Cold War, post-Soviet world; second, *national* missile defense, to defend American people using ground-based weapons; and third, follow-on technologies that offer some promise in both tactical and strategic defense.¹⁹

Whether we call ballistic missiles *tactical*, *theater*, *strategic*, *intercontinental*, or otherwise, makes little difference. What matters is the *nature of the threat* they pose to one's operations and existence, and the *objectives* of the belligerent using them. Every CINC or JFC must realize how critical one WMD (delivered to or from their theater) could be to undermining the whole operation and, therefore, the ultimate achievement of US military and strategic objectives.

As our country is physically separated from most adversaries by vast oceans/landmasses, US leaders have generally considered that only those with very long-range weapons could threaten us *strategically*. The Soviet's tried to teach us a different perspective in 1962, resulting in the *Cuban Missile Crisis*. We quickly realized there might be more to worry about -- that relatively short-range missiles could have strategic implications, depending upon their type of warhead, their location, and their target. As such, the feasibility of North Korea launching WMD -- including, perhaps, nuclear warheads -- on TBMs at population centers in South Korea or Japan, is surely considered by our allies there to be a strategic threat. We should consider it one, too, because of potentially huge repercussions, and the possibility that a major US base there could be hit. What matters with TBMs is the nature of warheads possessed, the missile ranges and targets within their reach, the time available for warning and reaction, and the position of intercepting weapon systems. We may not learn the type of warhead until well after launch, or upon impact. Also, TBMs in one theater, may be targeted against *strategic* objectives in an adjacent theater.

¹⁹ Secretary Aspin's briefing on BMDO.

Pressures Boosting Proliferation of Nuclear and Other Weapons of Mass Destruction

Many countries have sought, and will continue to seek, to add TBMs to their arsenal, or improve the capability already possessed, for some of the same reasons we, the Soviet Union, and others did in the past. Primarily, they want to ensure their security and autonomy. Ballistic missiles can provide a cost-effective means to counter real or perceived threats in their region, by deterring attack, invasion, or external intervention/interference in their affairs. A variety of TBMs are proliferating, as arms merchants push their wares and technology advances in Third World regions. Some "rogue state" dictators are, no doubt, counting on technology and expertise to become more available as economic competitiveness and the need for hard currency intensifies. Compared to alternative offensive weapon systems, it is still relatively cheap to procure and maintain a TBM capability; and, while producing or procuring nuclear warheads is difficult and costly, acquiring chemical ones is not. Also, TBMs, their warhead components, and their launchers are survivable, because they can be readily moved and/or hid. Many countries also seem to believe that US-led counterproliferation efforts are hypocritical, or that they have little hope of keeping pace in the long run -- especially in the face of regional power struggles. Since the Soviet demise, some states feel less secure; others see a need, or opportunity, to fill power vacuums themselves, and see TBMs as a means to help them achieve or maintain relative advantage in their region. Thus, many leaders may seek a ballistic missile capability as a means of acquiring more recognition, prestige, credibility, and power. This is particularly true for aggressive ones, wanting to pursue regional hegemony.

Considering the situation in the FSU, where a huge arsenal of nuclear weapons continues to exist amid revolutionary conditions, there are four potential proliferation problems. First, those weapons are now deployed on the territories of four states, instead of one. Second, the control of those weapons (referred to as "loose nukes" by some) may be in jeopardy; and the weapons, or the materials and technology to build others, could be marketed clandestinely. Third, the experts who have the "know how" may find their way to other states wishing to hire them. And, fourth, any

restraint the FSU may have exercised over nuclear-ambitious client states -- such as North Korea -- is greatly diminished, leaving them to pursue their ambitions, probably with more urgency.²⁰

Current Threat and Trends

Developments in the international security environment (especially during this transition period of great uncertainty and risk in the states of the FSU) and pressures boosting proliferation of WMD, coupled with the vigorous growth of technology and international trade, do not bode well for stemming proliferation and reducing the exposure of US military operations to ballistic missile threats. New dangers have arisen, and the potential risks to our forces and allies have increased.

Concerning WMD, more than 20 countries now have or are developing nuclear, biological, and chemical weapons and the means for delivering them.²¹ While the FSU and China are the only states currently able to pose a direct threat to the heartland of America, many other states may have the ballistic missile capability necessary by the turn of this century (or shortly thereafter). However, the threat is here, now, to our friends, allies, and forces deployed or forward-based in many regions of vital interest to the United States. The *theater* ballistic missile threat is a sobering reality.

In the developing world, where many states are, or could become, hostile to industrialized democracies, well over a dozen countries already have an operational ballistic missile capability, and others have programs to develop one.²² Even if not the object of an initial aggression, US and allied forces may come under attack if we intervene in any regional contingency or conflict. Every US Commander in Chief (CINC) has at least a potential threat in his area of responsibility (AOR), or within reach of TBMs in an adjacent region, considering the current and planned capabilities of various countries. The CINC of USPACOM must pay close attention to the development of capabilities in North Korea, China, Indonesia, India, Pakistan, South Africa, and the FSU. The

²⁰ Secretary of Defense Les Aspin's remarks to the National Academy of Sciences Committee on International Security and Arms Control, in Washington, DC, December 7, 1993. See "The Defense Counterproliferation Initiative," *Defense* 94, Issue 1, p. 29.

²¹ *Ibid.*

²² *Ibid.*, pp. 29-30.

CINC of USCENTCOM must carefully watch developments in China, India, Pakistan, Iran, Yemen, Iraq, Syria, Israel, Egypt, Libya, and the FSU. The CINC of USEUCOM must monitor Iran, Iraq, Syria, Israel, Egypt, Libya, Algeria, South Africa, and the FSU. And the CINCs of USACOM and USSOUTHCOM must follow Brazil, Argentina, Cuba, and the FSU.

Currently, the range capabilities of most Third World countries' ballistic missiles vary from 65 km (for a *Frog-7*) and 120 km (for an SS-21), to 600 km (for a *Scud-C* or M-9).²³ And, while the vast majority of the threat inventory is in that range now, it is bound to be only a matter of a few years until many possess missiles (such as the CSS-2, being marketed by China) that can reach out 3000 km. Also, the accuracies of these short- and intermediate-range ballistic missiles are expected to improve from thousands to tens of meters, as they make use of our *Global Positioning System* (GPS).²⁴ Combine the projected ranges and accuracies of those ballistic missiles with nuclear, biological, or chemical warheads, and an adversary will have recipes to "cook and serve" WMD. Although many of the above states show no signs of being hostile to us now, things could change abruptly after a conflict broke out.

²³ Institute for Defense and Disarmament Studies (Gregory Webb, editor), The Arms Control Reporter (Cambridge, MA: IDDS, 1994), pp. 706.E.1-8.

²⁴ Rodney P. Rempt, "Killing Scuds From the Sea," Proceedings, June 1993, p. 53.

CHAPTER IV

STRATEGIC AND OPERATIONAL IMPLICATIONS

Our Vulnerability and Its Impact

As the United States, whether unilaterally or in conjunction with our allies, gets involved in regional contingencies, WMD are more likely to directly threaten our deployed forces; moreover, in a subtle way, they may threaten our ability to effectively use those forces. Ironically, during the Cold War when we were faced with numerically superior conventional forces, we and some of our allies relied on nuclear weapons as an *equalizer*. To compensate for our smaller-sized forces, and avoid the heavier political and financial burdens of stationing huge armies overseas, we made it plain that our threat to use nuclear weapons was ever present. But, as US conventional military power has become much more effective and credible, it has been our adversaries who are seeking nuclear weapons and other WMD -- such as Iraq did, and North Korea is doing -- to equalize us.²⁵

Thus, as proliferation of WMD accelerates, and regional aggressors' ballistic missile (range and accuracy) capabilities continue to improve, the potential threat to our political, economic, and security interests is becoming more profuse and widespread. Our and allied peoples, forces, and military operations are becoming more vulnerable. With *down-* or *"right"-sized forces*, we simply just can't afford any heavy losses of either people or military hardware. In the near future, several advanced *Scud*-type missiles may come "pouring-down" on a port where we are off-loading our ships, or on an airfield where we are "bedding-down."²⁶ How we (1) deploy to a region; (2) gather and position our forces, equipment, and supplies; and (3) stage operations will become much more critical. General Chuck Horner (the Joint Force Air Component Commander (JFACC) in *Desert Storm*, now CINC USSPACECOM) calls our lack of a real BMD capability "the sucking chest wound of our defense program," saying "It's the one thing we can't cover on the battlefield."²⁷

²⁵ Aspin, p. 30.

²⁶ Rempt, p. 53.

²⁷ John T. Correll, "Readiness First," *AIR FORCE Magazine*, April 1994, p.13.

Principles of War

Without a BMD capability, a regional CINC or JFC may be forced to conduct operations counter to some *principles of war*, ignoring prudent considerations. He could (1) lose focus on the *objective*; (2) become preoccupied with the defensive, instead of the *offensive*; (3) feel compelled to disperse forces to limit losses or counter scattered attacks, being unable to *mass* forces and effects at the decisive place and time; and (4) neglect *economy of force*, by not employing available combat power in the most effective way, and allocating much of his resources to secondary efforts. If a CINC cannot provide TBMD, he may allow the enemy to deny our forces *security* and freedom of action; or he may permit the enemy to achieve *surprise* by striking in a manner, time, or place for which our forces are unprepared, thereby seizing the initiative from our operational commanders. Thus, all prior careful planning and consideration of *principles of war* by the JFC could come unraveled as our forces are "paralyzed" having to react to TBM threats or a disaster.

Escalation Avoidance

It is apparent that the United States is not willing, for political, economic, environmental, and moral reasons, to see nuclear, biological, or chemical weapons used in war -- certainly not in any contingency operation. We do not want to have to use them, and we want to prevent their use by any participant in a conflict. But, given a desperate situation and the fairly limited military capabilities of most Third World states, they may be considerably less inhibited from all-out, rapid escalation. In the 1980-88 Iran-Iraq War, strategic asymmetries between the belligerents were a factor in tempting unilateral escalatory acts; more importantly, most escalations were initiated by the losing side, in attempts to (1) reverse the situation on the battlefield, (2) wear-down the opponent's resolve, or (3) start an escalatory spiral which would make the conflict much more dangerous and force the superpowers to impose a ceasefire.²⁸ In the event of US intervention in a

²⁸ Philip A. G. Sabin, "Escalation in the Iran-Iraq War," The Iran-Iraq War: Impact and Implications, edited by Efraim Karsh (New York: St. Martin's Press, 1989), p. 280-294.

regional contingency/conflict, the CINC or JFC with a BMD capability could use it to prevent or limit death and destruction, and, thereby, avoid the inclination to either preempt or retaliate as the only option. With BMD, *flexible response options* are greatly enhanced. Without BMD, we or our allies may succumb to escalatory pressures, and broaden the scope of military objectives and violence. The CINC with BMD could employ it to prevent an attack on an ally from succeeding, such as was done in *Desert Storm* for Israel. A BMD capability could well serve as a deterrent to escalation, keeping a war from involving chemical or nuclear weapons, or limiting the employment of WMD to one side; if employed effectively, it could also contain the conflict and keep the number of participants from increasing.

Alliances and Coalitions

Having an effective BMD capability during future regional contingencies/conflicts may be critical to the successful implementation of the CINC's warfighting plans and conduct of theater operations; certainly, it could be crucial to achieving US political objectives and alliance/coalition cohesiveness. Other countries would be more willing to join an effort in which their preciously few forces are less vulnerable, and in which the chances of escalation are relatively limited. They would also be more willing to remain involved if their forces and populations can be protected should the enemy employ ballistic missiles, particularly with nuclear, biological, or chemical warheads. The demonstration of an effective BMD within the theater may be pivotal in the next regional conflict. Furthermore, without a US or allied BMD protecting them, other countries are more likely to be coerced into unilateral acts of aggression to counter terror, or into capitulating to enemy demands.

Thus, with ever-increasing interdependence, and with our and our allies' forces shrinking, the likelihood of America being drawn into future conflict may increase. Alliance/Coalition warfare has been the way Americans have fought major wars this century; it is our preferred way, and it may be the only way we can win a major war in the future. Having an effective TBMD may be critical to our success in maintaining allied support and coalition solidarity.

American Strategic Culture and Threat Perception

Undoubtedly, *American strategic culture* led some aggressors to miscalculate in the past. Our citizens' propensity to (1) look inward; (2) feel secure from external, distant threats; (3) want to pare-down our military forces when not at war; (4) attempt to fight legitimately and alongside allies when necessary to go to war; (5) desire to win a quick, decisive victory; and (6) be unwilling to accept high numbers of casualties, suggests the great importance of BMD. Since our homeland has never been invaded in this century, and the single Japanese attack on our bases at Pearl Harbor occurred over 50 years ago, Americans simply believe that the United States cannot, or will not, be attacked. Now, even the stark memories of nuclear-weapons-development programs, civil-defense plans, and Cold War tensions that followed the end of WWII have all but drifted out of the national consciousness. Although a real possibility of tremendous destruction and disaster has existed for about a quarter of a century, most Americans have been little more than indifferent to the notion of a threat.²⁹

While the former Soviet threat to our homeland has receded, it could reemerge; and other new threats to North America will surely surface, as offensive capabilities develop worldwide. Meanwhile, in the next decade, it is highly conceivable that US or allied forces overseas will come under ballistic missile attack. And, the less prepared we are in each theater of operations, the more likely an attack. The question is, will we prevent a future catastrophe, or must it occur -- as the 1983 bombing of the Marine barracks in Lebanon did -- before we respond?

Without an effective BMD in the next conflict, our theater operations could be seriously hampered, jeopardizing our achievement of military and strategic objectives. If a ballistic missile attack -- with WMD -- were to succeed on our coalition forces or allied populations, our political and military leaders could abruptly lose public support. Regional CINCs must act now and prepare to reduce our vulnerability. Establishing TBMD could prevent a disastrous chain of events.

²⁹ Roger W. Barnett, *The Sinews of National Military Strategy*, USSI Report (Washington, DC: United States Strategic Institute, January 1994), pp. 18-19.

CHAPTER V

COUNTERING THE THREAT -- CONSIDERATIONS FOR REGIONAL CINCS

Alternative Ways to Counter the Theater Ballistic Missile Threat

As the Joint Chiefs of Staff (JCS) stated in the latest (1992) publication of our NMS, "The fundamental objective of America's armed forces will remain constant: to deter aggression and, should deterrence fail, to defend the nation's vital interests against any foe."³⁰ But, the JCS, in explaining that the threats we expect to face are regional rather than global, claimed, "We will, of course, deter and defend against strategic nuclear attacks as we have for the past forty years."³¹ In fact, thankfully, there have not been any such attacks; if there had been one, we could not have defended against it. However, in future regional contingencies/conflicts, CINCs must be able to counter the ballistic missile threat using the three approaches -- *deterrence, denial, and defense* -- which were proven successful to some degree in the 1991 Gulf War with Iraq.³² Meanwhile, we should improve our operational capabilities for each approach, as they are interdependent.

Deterrence

Keys to *detering* a ballistic missile attack -- or use of WMD -- by adversaries against US, or allied, forces and people in the various regions of the world are: (1) reliable systems to provide early detection and warning, cueing, discrimination, and interception; (2) adequate defenses; (3) the capability and flexibility to execute a spectrum of response options, including offensive strikes; and (4) enemy perception that all our responses are credible -- that we have effective weapons systems, and that we have the will to use any of them. Our political and military leaders must demonstrate the above to convince adversaries that the costs and risks of their acquiring, or using, WMD and

³⁰ JCS, National Military Strategy of the United States (Washington, DC: USGPO, January 1992), p. 6.

³¹ Ibid., p. 11.

³² Scott M. Nelson, Countering Third World Weapons of Mass Destruction: Desert Storm as a Prototype, unpub. research paper (Newport, RI: Naval War College, November 1993), pp. 6-16.

ballistic missiles outweigh the benefits, gains, or objectives they might expect to achieve. If we can *deter* the enemy, we will also help *deny* him and *defend* ourselves.

Denial

We can *deny* our potential adversaries WMD and ballistic missile capabilities through counterproliferation efforts, preventative attack operations, and preemptive strikes. CINCs must be prime contributors by influencing states in their region and by supporting *counterproliferation* efforts and devising and implementing plans for operations in concert with our allies. In late 1993, the Clinton administration announced the *Defense Counterproliferation Initiative* (DCI), to make the essential change they viewed the increased threat of proliferation demanded -- adding the task of *protection* to the task of *prevention*. The DCI recognizes that, in spite of measures such as the *Non-Proliferation Treaty* (NPT), the *Coordinating Committee for Multilateral Export Controls* (COCOM), and the *Missile Technology Control Regime* (MTCR), proliferation will still occur. The DCI is designed to complement nonproliferation in three ways: (1) by promoting consensus on the gravity of the threat, helping to maintain the international nonproliferation effort; (2) by reducing the military utility of WMD (while measures like NPT, COCOM, and MTCR keep the price high), making them less attractive; and (3) by reducing the vulnerability of the neighbors of those holding the weapons. More specifically, CINCs must support the DCI by (1) influencing military hardware acquisition to meet developing threats; (2) planning to fight differently, considering new threats; (3) forcing changes in what intelligence we collect and how we collect it; and (4) considering and incorporating our allies in our TMD plans and operations.³³

It was not until the United States took advantage of the 1991 war to liberate Kuwait that we employed *preventative attack operations* against a hostile state seeking nuclear capability, or possessing other WMD and the means to deliver them. Under cover of that short war, we attacked Iraq's nascent nuclear program, chemical munitions facilities, and *Scud* production sites (in actions reminiscent of the 1981 Israeli strike on Iraq's Osirak nuclear reactor). Previous to 1991, we had

³³ Aspin, pp. 28-31.

always rejected the inclusion of preventative strikes in our operational doctrine; as late as 1988-89, we refrained from attacking the huge chemical munitions facility nearing completion outside Rabta, Libya, despite hostile rattlings from Gadhafi.³⁴

Now, CINC USPACOM is, no doubt, heavily engaged considering efforts aimed at *denying* North Korea the opportunity to further develop or use nuclear weapons. While awaiting a military crisis or confrontation, he must contemplate an alternative to *preventative* action: *preemptive* action -- to strike first in an attempt to disarm the enemy.³⁵ In *Desert Storm*, our coalition forces did this, as they attacked Iraq's command, control, communications, and intelligence (C³I), and then conducted a massive hunt for *Scuds*. As the war got underway, many Special Operations Forces (SOF) missions, as well as about one-third of 2,000 fighter sorties flown daily were dedicated to searching for and destroying *Scud* missiles and their launchers.³⁶ While the mobile launchers proved very elusive, and weather further hampered intelligence sightings, the combined efforts did help reduce *Scud* firings from 35 in the first week, to 18 in the second, to an average of only 7 per week thereafter.³⁷ Notably, SOF missions succeeded in destroying 26 *Scuds* on the final day of the war, preempting any desperate attempt by Saddam Hussein to retaliate or bring Israel into the war.³⁸

Thus, even though an adversary decides to pursue a ballistic missile capability to deliver WMD, if we can *deny* him the *means* to attack, we will help *deter* him and *defend* ourselves. But, pursuing *prevention* through *deterrence* and *denial* may not be enough to cope with the potential threats of regional aggressors who hope to achieve objectives with WMD. CINCs and JFCs also have the responsibility to provide *protection*; so, they must ensure an option exists for *defense*.

³⁴ Michael W. Ellis and Jeffrey Record, "Theater Ballistic Missile Defense and US Contingency Operations," *Parameters*, Spring 1992, pp. 14-15.

³⁵ *Ibid.*, p. 15.

³⁶ H. Norman Schwarzkopf, *It Doesn't Take a Hero: The Biography of H. Norman Schwarzkopf* (New York, NY: Bantam Press, 1992), p. 417-419.

³⁷ *Ibid.*

³⁸ Douglas Waller, "Secret Warriors," *Newsweek*, June 17, 1991, p. 28.

Defense

Because *deterrence* and *denial* could fail, regional CINCs need to acquire, integrate, and exercise viable *defenses* to *protect* troops and assets in threatened theaters. In general, we must supplement our offense with *defense* to have a balanced warfighting capability.³⁹ As elucidated by B. H. Liddell Hart:

... in war every problem, and every principle, is a duality. Like a coin, it has two faces. Hence the need for a well-calculated compromise as a means to reconciliation. This is the inevitable consequence of the fact that war is a two-party affair, so imposing the need that while hitting one must guard.⁴⁰

Accepting his logic, we must have a BMD in case we cannot prevent a hostile aggressor from launching ballistic missile attacks. Thus, in theater operations, regional CINCs and JFCs must employ *active defense* to intercept and destroy enemy missiles/warheads in flight. Once launched, ballistic missiles can have extremely fast, shocking, and destructive effects if they get through. *Passive defense* must also exist, including dispersal, hardening, repair and recovery measures, personal protective gear for troops, and procedural and psychological training. We must use both active and passive defenses to neutralize those effects; obviously, we want to defend against missiles by intercepting warheads before detonation. And, if we can *defend* ourselves, we will help *deter* the enemy and *deny* his achievement of objectives.

³⁹ Ellis and Record, pp. 17-22.

⁴⁰ B. H. Liddell Hart, *Strategy* (New York, NY: Praeger, 1954), p. 146.

CHAPTER VI

THEATER BMD CONCEPTS, SYSTEMS, AND CONSIDERATIONS

Layered Defense Concept

For an *active defense* against ballistic missiles, the theater CINC needs to employ a *layered defense* concept, or a *defense-in-depth*, to better ensure interception. We should at least acquire *lower-* and *upper-tier* TBMD systems that can engage incoming weapons both inside and outside the atmosphere. While seeking a 100% probability of kill would not be feasible or cost-effective, designing a theater BMD system to provide 85-95% intercept success -- against enemy missiles in a multiple-launch scenario -- could well serve as an effective deterrent and protective shield. This can best be achieved with a *defense-in-depth*, using multiple opportunities to engage and destroy the missiles. These opportunities may occur not just in the *terminal phase*, but also in the *midcourse*, *post-boost (ascent)*, and *boost phases* of a ballistic missile's trajectory. If a missile could be carrying a WMD, we would want to engage it as early as possible.

Developments in BMD Systems

Currently, US capability for BMD relies on only the *Patriot* PAC-2, an air defense SAM, converted to the role of theater BMD in the Gulf War. The PAC-2 can only operate in the *lower tier* of a layered defense; so, its value in countering TBM threats has been mainly for *point defense*, because of the relatively limited scope of its engagement area (in a TBM's terminal phase). Also, analysis showed *Patriot's* success against *Scuds* in the war was not as great as many commentators depicted; and its expected effectiveness against TBMs, had they carried chemical, biological, or nuclear warheads, might have been much less, because the debris may have still fallen in the target area. There is another problem with *Patriot*: While the *Patriot* PAC-2 is assembled, it can only be air-transported in a C-5. This greatly limits options for timely deployment. Moreover, *Patriot* was not designed to be very mobile once in place on the ground.⁴¹

⁴¹ Ellis and Record, pp. 20-21, 25-26.

The US Army has been developing an improved version of *Patriot*, the PAC-3, to upgrade its missile (and air) defense capabilities with either a new *Multimode Missile* or an *Extended-Range Intercept Technology* (ERINT) missile; and the Pentagon recently announced its selection of the smaller ERINT missile, which increases firepower with 16 hit-to-kill missiles per *Patriot* launcher (versus 4 *Multimode Missiles*).⁴² The PAC-3 version of *Patriot* will expand capabilities and redress some of *Patriot's* deficiencies, as it remains the key element of our TBM lower-tier defense. Meanwhile, to improve point defense, the Army is acquiring a *Guidance Enhancement Missile* (GEM) for PAC-2, pursuing TPS-59 radar/ *Hawk* missile system upgrades, and considering a *Corps SAM* concept (with a follow-on missile) -- designed to cover US corps-/division-level forces and Marine Corps amphibious operations, as well as to make up for *Patriot's* limited battlefield mobility.⁴³

Another defensive missile, the *Arrow* (being developed by Israel with US funding), has greater coverage than *Patriot* PAC-2; but, it is also a much larger system, too cumbersome logistically for rapid mobility in support of US contingency operations.⁴⁴

Because no one lower-tier weapon system can adequately counter all aspects of the TBM threat, and because we may not be able to put troops on land early in a contingency, the US Navy is pursuing upgrades to *Aegis*-equipped ships to provide a sea-based capability in the midterm. These upgrades include modifications/improvements to *Aegis* radar and weapon-control- system software, and to the SM-2 Block IV missile. Having a limited-area TBMD capability aboard nearly 50 *Aegis* cruisers and destroyers (of which one-third are usually deployed around the world) could offer regional CINCs, faced with a threat, an initial response to help deter hostile adversaries, and to provide protection for (1) naval and ground forces; (2) amphibious objective areas; and (3) coastal ports, airfields, depots, and cities. But, the protective coverage would depend on circumstances,

⁴² Federal News Service script, April 21, 1994, of Deputy Defense Secretary John Deutch informing Congress that the Pentagon wants to proceed with Loral Vought Systems' ERINT over Raytheon's Multimode Missile.

⁴³ Ellis and Record, pp. 20-26; BMDO (unclassified) slides briefed to NWC, March 17, 1994.

⁴⁴ Ibid.

including (1) ship locations, relative to TBM launch sites, and to areas to be protected; (2) speeds of the TBMs; (3) interceptor ranges; and (4) availability of early warning and external cueing.⁴⁵

However, regional CINCs need to supplement lower-tier defenses with *upper-tier* ones. A *Theater High-Altitude Area-Defense* (THAAD) system being developed by the US Army is very promising. THAAD has a far-larger engagement bubble than *Patriot*, and it is designed to intercept TBMs exclusively (vice aircraft). The CINC or JFC could use a land-based THAAD and a ship-based counterpart to essentially put a crude "roof" over our forces in the theater; this would give them more than a very-limited number of flimsy "umbrellas" to protect them against any "rain" of ballistic missiles, while helping protect our allies, too. Ultimately, the BMDO is looking to add an airborne capability, using F-14 or F-15 fighters which could fire weapons to intercept TBMs in their boost or ascent phases.⁴⁶ Other high-altitude, long-endurance aircraft, such as RC-135, U-2, or stealthy B-2 aircraft, should be considered for conversion as well. Then, the CINC could rapidly deploy these converted aircraft near enemy territory to intercept TBMs in their boost/ascent phases. Combine the above with the expanding availability of early-warning/surveillance data dissemination (from *Defense Support Program* (DSP) sensors and possibly *Brilliant Eyes*), and provide cueing information and commands to all TMD users, through instantaneous, interoperable, fully-integrated C², and regional CINCs could have a TBMD capability by the century's turn -- to meet the threat.⁴⁷

Point of Interception, Enemy Perceptions, and Operational Considerations

If we cannot deter an enemy from using ballistic missiles, or counter them by locating and attacking them prior to launch, the operational commander needs to think in terms of intercepting them as close to their points of launch as possible, using available land-/sea-/air-/space-based assets. This will become more important as WMD and longer-range missiles proliferate, as *battlespace* concepts expand, and as we attempt to garner allies and maintain support in conducting coalition

⁴⁵ Robert M. Soofer, "Ballistic Missile Defense from the Sea," *Naval War College Review*, Spring 1994, pp. 60-71.

⁴⁶ Ellis and Record, pp. 20-26; BMDO (unclassified) slides briefed to NWC, March 17, 1994.

⁴⁷ *Ibid.*

efforts. Destroying a ballistic missile in the midcourse phase of its trajectory may cause debris and contaminants to fall on a neutral or allied country, creating serious repercussions. And, trying to intercept it there (from earth) may be more difficult due to the height of the trajectory, minimal signature, and deployment of penetration aids (such as decoys). But, it would be less prudent, for a number of reasons, to wait to intercept missiles/warheads until the terminal phase -- just before they hit. As high-speed, ballistic objects, their debris may still fall in the area of their intended target and cause collateral damage. Also, the terminal phase offers only a last-ditch, brief, narrow window of opportunity for engagement. Moreover, the positioning of point or limited-area defenses is critical.

While the CINC must ensure any TBMD assets are put into a potential conflict area early on to deter the enemy and protect against a surprise attack, systems are needed which can be placed in a position to intercept any TBMs fired as close to their sources as possible. This would best affect an enemy's perceptions, by blocking his launch attempts and making them threatening to him.⁴⁸ Somewhat like defending against the pass in a game of football, a pass rush should focus on the quarterback with the ball, instead of just relying on defenders to cover all receivers. If the thrower can't be sacked, it's to the defense's advantage to block the ball, or intercept it, shortly after it's released -- while the offensive side is more vulnerable, and the defensive one less threatened.

Thus, CINC or JFC "game plans" should include deploying air-/sea-based TBMD assets to the vicinity of TBM threat locations. This would pressure an enemy's offensive forces, while putting some assets in more advantageous positions from which to defend. Even though we may bow to cost or *ABM Treaty* constraints, and not try to field space-based interceptors, we should still seek a capability to hit TBMs in their boost/ascent phases. Airborne TBM-intercept platforms could be the answer.

⁴⁸ Rolin Mainuddin, "SDI: The Impact on Deterrence," *Military Review*, March 1992, p. 61.

CHAPTER VII

CONCLUSIONS AND RECOMMENDATIONS

While *Desert Storm* captured the world's attention concerning the threat of TBMs, the apparent success of *Patriot* missile batteries (quickly converted to a TBMD role) probably led most Americans to be overconfident about our defensive capabilities. However, had Saddam Hussein employed *Scuds* early during the *Desert Shield* buildup, used WMD, or still possessed effective C² to later mount a concentrated attack on Israel, things might have turned out much differently. As CNN gave the world glimpses of Iraqi *Scud* attacks, blow by blow, political and military leaders must have sensed the fragility of the whole operation, and asked themselves one poignant question: What would happen to US public support and coalition solidarity if allied populations or forces were hit with WMD? Some of the forces, bases, ports, and cities were, in fact, very vulnerable to ballistic missiles. Although the allies may have deterred or prevented the Iraqis from using WMD, we did not stop them from employing TBMs. Notably, because our ability to defend against TBMs was so scant, we spent an inordinate amount of effort and resources trying to deny Iraq use of its *Scuds*. In the next regional contingency, greater numbers of TBMs may be employed at the onset of operations, and we may not be able to deter the use of WMD. Furthermore, there is no doubt that our fighter-aircraft resources will be considerably fewer in the future; and the JFC may have to dedicate most sorties to missions other than hunting missile launchers. We may not have a high degree of air superiority, particularly if we are under fire while still deploying to the region.

Right now, there is a growing threat from short-/intermediate-range ballistic missiles in our regional CINCs' AORs, particularly EUCOM, CENTCOM, and PACOM; and we can't ignore the new danger of nuclear proliferation, and the poor prospects our counterproliferation efforts face.

The time has come to take TBMs and WMD more seriously -- especially considering the more likely demand or need for US involvement or intervention overseas, and the damage WMD could do to the strategic objectives we seek. As we plan and prepare for operations in the next regional contingency/conflict, every CINC must revive a sense of urgency about the imperative of

acquiring the capability to defend against TBMs. We cannot simply rely on deterring proliferation or the use of TBMs/WMD; nor can we count on being able to deny them to our adversaries. Our threats of retaliation may be perceived as hollow, and preemptive strikes or preventative attacks may fail; so, we must also be able to defend against TBMs -- to have a balanced warfighting ability.

Defending against ballistic missiles falls under the role of *aerospace control*; it is part of the *defensive counterair* and *counterspace* missions, for which the theater CINC or JFC (through the JFACC) is responsible. *Defensive aerospace control* operations must detect, identify, intercept, and destroy enemy weapons attempting to penetrate the aerospace environment above our/allied forces/people. The JFC normally designates a JFACC, an *Airspace Control Authority* (ACA), and an *Area Air Defense Commander* (AADC); and the ACA and AADC functions would normally be performed by the same person, who may also be the JFACC.⁴⁹ Whenever there is a significant TBM or "air-breathing" threat, I recommend the JFACC have a deputy in charge of *theater aerospace control and defense* to perform the ACA, AADC, and TBMD functions. This would aid *centralized control and unity of effort* → to ensure we can defend against fighter/bomber, cruise missile, and ballistic missile threats, in case deterrent and offensive measures fail. Otherwise, the JFACC could become task-saturated while trying to orchestrate offensive air operations.

Only by acquiring, deploying, and integrating effective TBMD systems can we "put a roof over our forces in the theater." Right now, we lack adequate defense against ballistic missiles. If regional CINCs do not cover the gap, our potential adversaries will not be deterred from pursuing WMD and ballistic missiles to deliver them; more importantly, our forces, operations, and support will be vulnerable. Soon, an enemy may "pop our bubble" around some future battlespace.

In the near future, threats to population centers and other large, fixed targets (like ports, depots, airfields, and staging bases) will be more credible and potentially devastating than threats to mobile military targets; so, CINCs and JFCs must focus on the former. Operational commanders must pay close attention to our adversary's developing capabilities, adapt plans accordingly, and

⁴⁹ HQ USAF, *AFM 1-1, Vol. I: Basic Aerospace Doctrine of the United States Air Force* (March 1992), pp. 5-16; and *JFACC Primer* (Second Edition, February 1994), pp. 34-35, 53-57.

anticipate plausible enemy courses of action. Obviously, commanders need TMD systems that are readily deployable and mobile (once in theater). Ground systems that are designed, generally, to be fixed in place are more likely to (1) be bulky and take a long time to reach the theater via sealift (such as in the case of *Patriots* recently shipped to South Korea), or require use of precious strategic airlift assets; (2) not be transportable by tactical airlift, once in theater, to meet shifting demands; (3) be vulnerable to attack; and (4) give the CINC or JFC much less flexibility.

Also, it would not be very prudent nor cost-effective to only rely on point-defense systems; we need to deploy wide-area TMD systems as well. Operational commanders must be able to put pressure on an enemy "in his backfield," and be able to intercept his TBMs in their boost/ascent phases -- as close to their source as possible, whether doing it using land-, sea-, air-, or space-based assets. We should carefully consider using high-altitude, long-endurance aircraft to attack TBMs in their boost/ascent phases, because we can rapidly deploy them and readily move their orbits. In the near term, the costs of deploying a space-based BMD are prohibitive, and it is doubtful we will revise the *ABM Treaty* anytime soon. Eventually, as time goes on, and adversaries continue to improve the range and warhead capabilities of their ballistic missiles, we may need to position theater missile defenses to serve as the initial screens for our national missile defense. Thus, acquiring, deploying, and integrating TBMD systems should be first step toward achieving the ultimate goal of a national BMD.

In sum, regional CINCs should advocate, plan, and prepare to use mobile, integrated, active TBM defenses to intercept any missiles fired as close to their sources as possible. Assets must be put in a conflict area early on, and positioned so they can threaten enemy missiles immediately after launch. We must realize that TBMs in one theater could be launched against targets in another theater, and that TBMs carrying WMD could have strategic implications. By minimizing this vulnerability, we would help ensure our operations can achieve our political objectives. All CINCs must cooperate to deter aggressors from acquiring and employing WMD. Demonstrating effective TBM defense would greatly contribute to that, while providing protection should deterrence fail.

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